

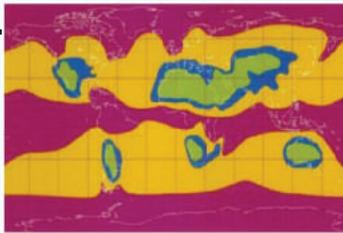
Synthetic Aperture Radar (SAR) Satellite



NovaSAR is a revolutionary concept in Earth observation - a small 440 kg Synthetic Aperture Radar (SAR) mission designed for low cost programmes using a combination of the latest commercial off-the-shelf technologies and SSTL's tried and tested approach in delivering low cost small satellite missions. SSTL teamed with SAR experts at Airbus Defence & Space to develop a highly flexible system that can support end-to-end solutions for numerous applications.



NovaSAR-S will Provide day and night coverage



Global Cloud Cover. Picture: Spot Image

Radar imaging for uncompromised access

NovaSAR is capable of imaging any point on the globe, day or night and through clouds.

A constellation of three satellites can image any point on the globe every day, regardless of daylight or weather conditions.

The NovaSAR core system has been developed from flight proven technologies.

- S-band Synthetic Aperture Radar
- Wide range of applications
- Complementary to optical satellites
- Low cost lightweight small satellite design
- Designed for low cost high performance missions
- Capability to image day and night and through cloud

Operational capability from the world leader in small satellite technology

Broad Area Maritime Surveillance

Value Added Maritime Analytics

Ability for User to Task Satellite

400 km High Performance Swath

Flexibility in Downlink Earth Stations

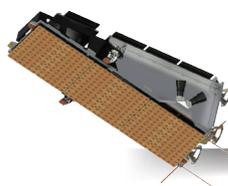
Dual SAR payload + AIS Sensor

Ascertain Dark Objects (All Weather)



Analytics

The ISR-PED market was primarily supported by Airborne platforms. Space platforms are fast gainingTM acceptance. Our Space based ISR-PED offering, a TRL9 commercial capability is well positioned to provide Tipping & Cueing to national assets, coalition partners and maritime clusters (Energy, Blockchains etc.)

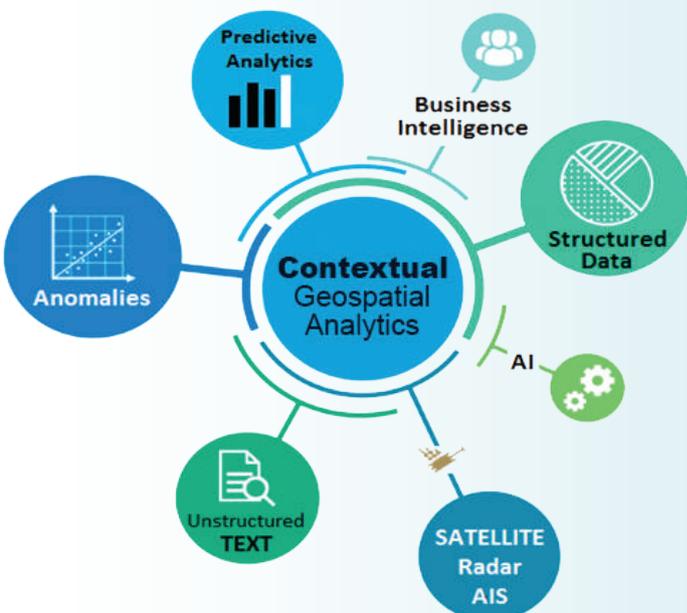


S-Band Radar SAR
Satellite with AIS

SpaceEyes Maritime Analytics
for BAMS & Dark Objects

**Value
added
Products
delivered
online**

<https://portal.space-eyes.com>



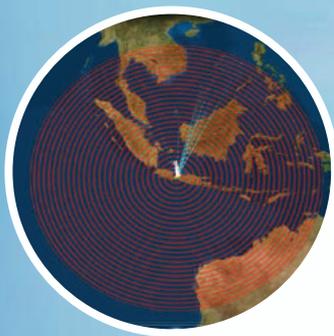
Ten Critical Analytical Tasks

1. Query Data against Industry Benchmarks
2. Identify Suspicion Indicators
3. Validate Aggressors Methods of Operations
4. Anomaly Detection
5. Predictive Analytics
6. Apply Domain Intelligence 'User Rules'
7. Automated Threat Evaluation
8. Build 'User defined' Threat Matrix
9. Apply User Scenarios 'Vignettes'
10. Monitor Vessels & Regions of Interest

Deliver Evidence and Alerts

ISR-PED is a building block for MDC2 (Multi Domain Command & Control)

Intelligence, Surveillance, Reconnaissance (ISR) is a \$45+ Billion industry using airborne platforms and more recently high-altitude UAV's to monitor large swaths of typically unmonitored waters. Space-Eyes offers an innovative ISR-PED capability using a low earth orbit satellite carrying an automatic identification system (AIS) receiver and synthetic aperture radar (SAR) payload with a 400km swath. The uniqueness lies in co-locating a maritime AIS and SAR sensor on the same spacecraft. The data constituting (compliant and non-compliant targets) is further integrated with 50+ maritime data sources to ascertain threat and context on the target of interest. To further enhance near real-time contextual content the geospatial content delivers automated threat assessment. Industry estimates are that by 2021 there will be 100+ micro and small radar satellites. Walter Scott Chief Technology Officer, MAXAR Technologies told SpaceNews "It's actually easier for machines to pull data out of radar imagery." For ISR-PED it's less about a picture but using the radar satellites to detect asymmetric threats in the Sea Lanes of Communications (SLOC's). Space-Eyes adds value as a tipping and cueing capability to operations intelligence centers for multi domain command and control.



Automatic Identification System (AIS) Sensor is used to locate, identify **COMPLIANT** surface targets.



Synthetic Aperture Radar (SAR) Sensor is used to locate, identify **NON-COMPLIANT** surface targets.

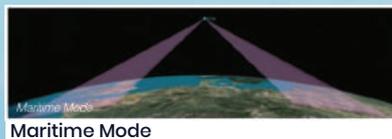
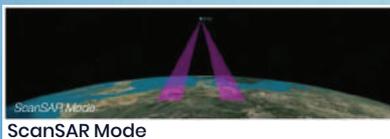
Discriminator is Maritime Mode with 400 KM Swath

Maritime: 145,000 km² (6m resolution with a 400 km swath)

StripMap: 7,500 km² (6m resolution with a 20 km swath)

ScanSAR: 37,000 km² (20 m resolution with a 100 km swath)

ScanSAR Wide: 52,000 km² (30 m resolution with a 140 km swath)



Maritime



StripMap



ScanSAR



ScanSAR Wide



Near Real-Time Maritime Geospatial Temporal Context for a pre-defined Area of Interest. The library captures all threats and risks emanating from the targets, associated parties and Area of Responsibility or Area of Interest.

Maritime Domain Understanding across the congested seas and vast oceans.

- Tipping & Cueing
- Contextual Analytics
- Satellite Tasking
- Dark Objects



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